

## Projects

# RFI #1

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### ► Distributed information systems

**Biological Retrieval System** is done for Biomax Informatics GmbH.

#### Objectives:

- searching biological databanks (simple and advanced text-based search, semantic search, usage of cross-references among databanks, fast access to huge amount of data);
- management of biological databanks (creating, removing, modifying, making indices);
- integration of various data presentation formats (plain texts, relational databases), as well as different biological formats (EMBL, PROSITE, SWISSPROT);
- providing universal Web-based user interface.

#### Used technologies:

- CORBA (API in CORBA IDL for each server component; usage of ISPORB);
- XML (universal format for internal data presentation; allows integration of various data presentation formats (plain texts, relational databases), as well as different biological formats (e.g. EMBL, PROSITE, SWISSPROT));
- RDBMS (Oracle, MySQL and so on);
- Internet-based technologies (Java, JavaScript, HTML, CGI/FastCGI);

Go into details...

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### ► Object Request Brokers

Technology of object request brokers (ORB) allows applications, implemented on different platforms, communicate in transparent way respectively objects location. ORB plays the role of so-called "objects bus" in the global environment of objects, performing operations of object finding, object activation, parameters and results passing. Object communication is based on the client-server model, and the broker serves as a mediator between them.

**C++ ISPORB**, developed by the group, is compliant with OMG Common Object Request Broker Architecture 2.0 (CORBA 2.0) standard.

[Here](#) you can download **free** beta version 1.0 of C++ ISPORB.

[Go into details...](#)

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Object request broker for Protel-2 language is an example of broker, implemented for usage in the special environment of telecommunication module. Protel is proprietary programming language of the Nortel. **Protel-2 ORB** was developed for Nortel Networks Open Node project.

Other research activities concerning ORBs include:

- usage of Meta-Object Protocols (MOP) and formal methods for adaptable transparent coherence of distributed contexts ([Go into details...](#));
- interoperability of active and passive object models, consistency of synchronous and asynchronous invocations;
- architecture of object request brokers adaptable to real-time applications and growing requirements of Object Management Architecture (OMA) OMG;
- generating efficient marshalling code for distributed applications.

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